
Subject: Re: Explain Contour Plot to Me

Posted by [Michael Galloy](#) on Fri, 09 Sep 2011 20:34:06 GMT

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On 9/9/11 1:39 PM, David Fanning wrote:

```
> Folks,
>
> OK, forget labeling the color bar. I can live without
> that.
>
> I would consider the week a triumph if someone could just
> explain to me, like I was a 10 year old child, how to
> use the IDL 8.1 contour function to produce a contour
> plot with four colors of my choosing. The colors will
> be used like this:
>
>   Data between 0.00 and 0.25 should be red.
>   Data between 0.25 and 0.50 should be blue.
>   Data between 0.50 and 0.75 should be green.
>   Data between 0.75 and 1.00 should be yellow.
>
> Here is the program I am trying to run, using some
> ideas from Mark Piper's program from yesterday.
> You see two different ways of trying to get the
> Colorbar() colors right. One of which actually
> works. But neither of the Contour() plots have
> the right colors. The Coyote Graphics plot at the
> end is what I am trying to achieve.
>
> PRO ContourTest
>
> ; Create a simple, random dataset for contouring:
> data = RANDOMU(-3L, 9, 9)
> LoadCT, 0
> TVLCT, 255, 0, 0, 0
> TVLCT, 0, 0, 255, 1
> TVLCT, 0, 255, 0, 2
> TVLCT, 255, 255, 0, 3
> TVLCT, rr, gg, bb, /GET
>
> rgb = Transpose([rr[0:3],[gg[0:3],[bb[0:3]]])
> Help, rgb
> rgb = Congrid(rgb, 3, 256)
>
> levels =[0.0, 0.25, 0.5, 0.75]
>
> ; Contour function try 1.
> w1 = Window(DIMENSIONS=[500, 400])
```

```

> ctr=contour(data, /CURRENT, C_VALUE=levels, $
>   POSITION=[0.1, 0.1, 0.9, 0.8], /FILL, $
>   RGB_TABLE=rgb, $
>   AXIS_STYLE=2)
> names = String(levels,FORMAT='(F0.2)')
>
> cb = Colorbar(TARGET=ctr, $
>   POSITION=[0.1, 0.85, 0.9, 0.9])
>
> rgb = Transpose([[rr[0:3]], [gg[0:3]], [bb[0:3]]])
> Help, rgb
>
> ; Contour function try 2.
> w2 = Window(DIMENSIONS=[500, 400])
> ctr=contour(data, /CURRENT, C_VALUE=levels, $
>   POSITION=[0.1, 0.1, 0.9, 0.8], /FILL, $
>   RGB_TABLE=rgb, RGB_INDICES=Indgen(4), $
>   AXIS_STYLE=2)
> names = String(levels,FORMAT='(F0.2)')
>
> cb = Colorbar(TARGET=ctr, $
>   POSITION=[0.1, 0.85, 0.9, 0.9])
>
> ; Coyote graphics.
> cgWindow, WXSize=500, WYSize=400
> cgContour, data, LEVELS=levels, C_COLORS=Indgen(4), $
>   POSITION=[0.1, 0.1, 0.9, 0.8], /FILL, /ADDCMD
> cgColorBar, NCOLORS=4, RANGE=[0,1], FORMAT='(F0.2)', $
>   DIVISIONS=4, /FIT, /ADDCMD
> END
>
> If you can get this to me before Nadal beats Roddick,
> you will get bonus credit, which can be used to ask
> function graphics questions at some time in the future. ;- )
>
> Cheers,
>
> David

```

I had to expand the 4 colors into a full 256 color table with 257 contour levels to make the color bar display correctly.

There are definite oddities in how things have to be given to CONTOUR and COLORBAR. For example, I can get the correct contour colors with a 4 color color table, but the color bar then displays as the 4 colors followed by the rest of the grey scale. Also, I have to give CONTOUR the RGB_INDICES vector, even though from the docs it looks like I'm just giving it the default value.

Anyway, this works for me, I hope this doesn't crash your computer.

```
pro contourtest
  compile_opt strictarr

  ; create a simple, random dataset for contouring
  data = randomu(-3!, 9, 9)

  loadct, 0
  tvlct, 255, 0, 0, 0
  tvlct, 0, 0, 255, 1
  tvlct, 0, 255, 0, 2
  tvlct, 255, 255, 0, 3
  tvlct, rgb, /get

  rgb = congrid(rgb[0:3, *], 256, 3)
  levels = findgen(257) / 256.

  w = window(dimensions=[500, 400])
  ctr = contour(data, /current, c_value=levels, $
    position=[0.1, 0.1, 0.9, 0.8], /fill, $
    rgb_table=rgb, rgb_indices=indgen(256), $
    axis_style=2)

  cb = colorbar(target=ctr, position=[0.1, 0.85, 0.9, 0.9])
end
```

--

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